

DIVISION OF ENVIRONMENT
QUALITY MANAGEMENT PLAN

PART III:

VOLUNTARY CLEANUP AND PROPERTY REDEVELOPMENT PROGRAM
QUALITY ASSURANCE MANAGEMENT PLAN

Revision 0
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Kansas Department of Health and Environment
Division of Environment
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* Refer to State Cooperative and State Deferral Programs for the Bureau's Standard Operating Procedures (SOP's) used in this Program Plan.

Section 1

INTRODUCTION

1.1 Purpose of Plan

This document presents the Quality Assurance Management Plan for the Voluntary Cleanup and Property Redevelopment Program (VCPRP). The plan describes the mission, developmental history, organizational structure, environmental monitoring protocols, data handling requirements, and quality assurance (QA) and quality control (QC) requirements of this program. Reference is made to appropriate standard operating procedures (SOPs) for procedures and equipment typically used by the VCPRP. These SOPs are included in the Kansas Department of Health and Environment, Division of Environment, Bureau of Environmental Remediation (BER) Quality Management Plan as appendices.

1.2 Plan Revisions

To be effective and useable, this document must be maintained in an up-to-date condition. As required by the Division of Environment Quality Management Plan (Part 1, Section 7), the contents of the VCPRP Quality Management Plan are to be reviewed on at least an annual basis. Minor changes in the plan's organizational structure or terminology may be approved by the Remedial Section Chief. However, major revisions which substantially change the contents of the plan, especially in terms of QA policies or procedures, require the added approval of the BER QA Representative and the Bureau Director.

Section 2

DESCRIPTION OF PLAN

2.1 Historical Overview

The Voluntary Cleanup and Property Redevelopment Act was enacted by the Kansas Legislature on July 1, 1997 (Kansas Statutes Annotated 65-34,161 through 65-34,174). The new law and program is administered by the Kansas Department of Health and Environment (KDHE), Bureau of Environmental Remediation (BER). The law was an 1997 initiative of Governor Bill Graves to address, through statutes, the issues associated with buying, selling, or redeveloping environmentally contaminated property in Kansas. Rules and regulations to implement the law were adopted on June 26, 1998 (Kansas Administrative Regulations 28-71-1 through 28-71-12).

2.2 Mission and Goals

The Voluntary Cleanup and Property Redevelopment Program (VCPRP) provides a mechanism for property owners, operators, prospective purchasers, and local governments to voluntarily address contaminated property with KDHE oversight. Under the program, stakeholders performing environmental investigations and cleanups of contaminated properties that meet the criteria in the law (low to medium priority contamination that will not qualify for the National Priorities List (Superfund) and are of minimal risk to human health and the environment) can receive a “no further action” determination from KDHE to provide some protection from potential liabilities. Adjacent property owners who did not contribute to the contamination may also receive protection from KDHE through such determinations. These determinations provide assurance that the remediated areas will not become the subject of future KDHE enforcement action. Additionally, KDHE and the U. S. Environmental Protection Agency (EPA), Region VII, have entered into a Memorandum of Agreement to provide voluntary parties with assurance of relief from future federal liability at a voluntary cleanup property.

Properties that are accepted into the VCPRP follow a streamlined process to address their property in an expeditious manner to encourage the redevelopment or enhancement of such properties. Clearly defined cleanup standards that identify the extent of cleanup are provided to the voluntary party early in the program so the time and costs involved in cleanup can be determined. The VCPRP is truly voluntary and is designed for industry and businesses to properly address contamination on their property through a private/state partnership. The voluntary nature of the program benefits owners, real estate purchasers, developers, and lending institutions. At the same time, the program benefits the environment and public interest by the resulting identification, characterization, and cleanup of environmental contamination.

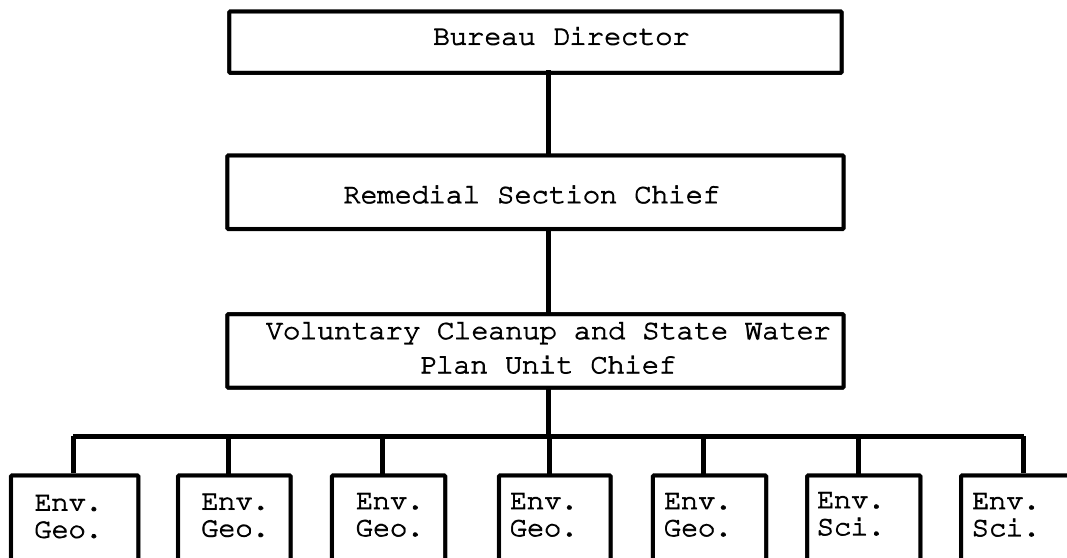
2.3 Organization and Responsibilities

ORGANIZATIONAL CHART

The VCPRP is administered by the Voluntary Cleanup and State Water Plan Unit of the Remedial Section of the Bureau of Environmental Remediation (BER). The organizational hierarchy under which the VCPRP operates is depicted in the following figure.

The Bureau Director's responsibilities are defined in the BER QA Management Plan presented in Part II of the QMP.

The Section Chief ensures that the policies and procedures associated with the VCPRP are properly and



consistently implemented. Along with the Unit Chief, this employee plans, organized, supervises, and directs the activities of the VCPRP. The Section Chief is also responsible for coordination between the units within the Remedial Section.

The Unit Chief is the manager of the VCPRP and State Water Plan. This employee ensures that the requirements of the QA Management Plan and associated SOPs are implemented in a consistent, timely, and reliable manner. Working with the Section Chief, the unit leader strives to improve the precision, accuracy, and reliability of all environmental monitoring data collected as part of the VCPRP and State Water Plan through the effective allocation of staff and resources.

In March, 2001, the staffing of the VCPRP included three Environmental Geologists that are official State Employees, with one Environmental Geologist and two Environmental Scientists retained as VCPRP Project Managers through a professional services contract. Both the State and contract employees provide general regulatory oversight of all scientific investigations and cleanup activities performed relative to the VCPRP. Each of the Project Managers, with respect to their assigned properties, are responsible for:

- (1) meeting with voluntary parties and their contractors to explain the goals and objectives of the VCPRP and VCPRP guidance for investigations, reports, and cleanups;
- (2) reviewing and evaluating VCPRP applications for completeness, for meeting eligibility requirements for the program, and recommending the acceptance of the property into the program;
- (3) reviewing and evaluating voluntary cleanup investigation work plans and reports for completeness, accuracy, technical adequacy, and conformity with VCPRP guidance documents;
- (4) providing technical suggestions to allow for correction of perceived deficiencies in work plans and reports;
- (5) reviewing and evaluating voluntary cleanup proposals and plans for voluntary cleanup and/or monitoring of contaminated properties and working with the unit chief to approve the appropriate selected cleanup alternative;
- (6) working with the voluntary party to make public announcement of the preferred cleanup alternative and to participate in public meetings if required;
- (7) oversight of cleanup activities and monitoring to ensure that projects are progressing at an acceptable pace;
- (8) collecting duplicate samples and performing other QC functions to ensure the representativeness and general quality of the various samples collected at a site throughout the investigation, cleanup, and monitoring phases; and
- (9) reviewing voluntary cleanup reports to determine if cleanup objectives have been met and to carry out verification sampling prior to issuance of “no further action” determinations.

Section 3

QUALITY ASSURANCE / CONTROL POLICY STATEMENT

Project managers do not possess a distinct set of standard operating procedures for administration of QA/QC aspects of the VCPRP. The project manager's role within the program is generally limited to reviewing and approving applications, work plans, proposals, and reports submitted by the voluntary party or their contractors. As an element of the oversight process, the voluntary party or their contractor must prepare and present a Quality Assurance Project Plan (QAPP) as part of the work plan for Voluntary Cleanup Investigations and Voluntary Cleanup Plans. These QAPPs must cite SOPs for field observations that are equivalent to or exceed the QA requirements of SOPs contained in this Quality Assurance Management Plan (Appendices A-W). Alternatively, the voluntary party or their contractor can be supplied with copies of, reference, and follow the KDHE SOPs. Project managers review each of these property specific QAPPs to determine consistency with the KDHE or industry standard SOPs and other federal regulatory guidance documents for QA/QC.

Project managers are responsible for the collection of split, duplicate, or collocated environmental samples to ensure the representativeness and general quality of the various samples collected at a site throughout the investigation, cleanup, and monitoring phases of the VCPRP. All sampling activities conducted by the VCPRP project managers or technicians should comply with the following program policies:

- the objectives of any environmental monitoring project shall be determined prior to implementation of data collection activities. This determination shall be accomplished during the planning stage of the project so that appropriate procedures will be incorporated into the design of the project and the resulting data will have a reasonable probability of meeting the stated objectives;
- sample collection and analysis activities and data management activities shall be subjected to periodic evaluation by supervisory personnel to identify and correct deficiencies and enhance the overall credibility of the section's environmental monitoring programs; and
- all data collection activities shall be accomplished and documented in accordance with Part I of the QMP, the BER QA Management Plan, and this document.

Federal QA/QC guidance documents frequently referenced by staff of the VCPRP include, but are not limited to:

- A Compendium of Superfund Field Operations Methods: (EPA/540/P-87/001, December, 1987)
- Data Quality Objectives for Remedial Response Activities: (EPA/540/G-87/003, March, 1987)

- Guidance for Data Usability in Risk Assessment: (EPA/540/G-90/008, October, 1990)
- EPA Guidance for Quality Assurance Project Plans: (EPA/QA/G-5, November, 1996)
- Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA: (EPA/540/G-89/004, October, 1988); and
- Risk Assessment Guidance for Superfund: (EPA/540/1-89/002, December, 1989).

Section 4

QUALITY ASSURANCE / CONTROL CRITERIA AND PROCEDURES

4.1 General Responsibilities

All project managers and technicians in the VCPRP shall be familiar with the contents of, implement as appropriate in all VCPRP field inspections, and periodically review the contents of the following SOPs:

Appendix A, BER-001;	Collection of ground water samples at known or suspected ground water contamination sites;
Appendix B, BER-002;	Collection of surface water samples at known or suspected contamination sites;
Appendix C, BER-003;	Collection of soil samples for laboratory analysis;
Appendix D, BER-004;	Collection of sediment samples for laboratory analysis;
Appendix E, BER-005;	Decontamination of equipment;
Appendix F, BER-006;	Installation of monitoring wells;
Appendix H, BER-008;	Characterization and disposal of investigative derived waste;
Appendix K, BER-011;	Evaluation and validation of data;
Appendix L, BER-012;	Collection of quality control for water quality data samples;
Appendix N, BER-014;	Minimum standards for model use;
Appendix R, BER-018;	Field safety protocol; and,
Appendix S, BER-019;	Chain of custody.

4.2 Selection of Sampling Locations

Under the VCPRP, sampling locations and sample types will generally be selected by the voluntary party's contractor. Project managers will insure that proposed and actual sampling operations meet the information needs of the VCPRP and meet appropriate technical standards. Sample locations should be justified and approved in work plans prior to sampling and work plans should contain appropriate property-specific QA/QC procedures to insure the technical validity of samples taken.

4.3 Field Equipment Installation

Generally, field staff will use sampling equipment that is provided by the voluntary party or a contractor and the contractor will be responsible for proper purging of wells before sampling. Appropriate sampling equipment must be used and proper SOPs followed by the contractor before the VCPRP project manager will take QA or verification samples. If KDHE is providing the sampling equipment, it will be generally appropriate to use non-dedicated sampling equipment that is designed for one-time use. Reusable samplers may be used if proper decontamination procedures are followed. Deep or large wells may need to have dedicated pumps installed before they can effectively be purged and sampled. Appropriate pump types and SOPs should be followed. KDHE will always provide its own appropriate sample containers obtained from the Kansas Health and Environment Laboratory (KHEL) before taking samples to be submitted to KHEL.

If the contractor is using on-site analysis by any methodology, appropriate calibration and QA/QC procedures shall be followed as stated in the approved work plans.

4.4 Sampling Types

Program, staff primarily provide quality assurance/quality control management services through the collection of split, duplicate, replicate, and/or collocated environmental samples concurrent with environmental sampling performed by the voluntary party or the voluntary party's environmental contractor. Program staff may occasionally be required to collect independent environmental samples.

Ground water is the most frequent sampled environmental medium, followed by surface or subsurface soil, surface water, sludge, sediment, and air. In addition, program staff may be required to collect special samples including influent and effluent water samples associated with ground water or surface water cleanup systems or remedial performance samples.

Program staff collecting quality assurance/quality control environmental samples adhere to the sample collection procedures specified in the KDHE-approved site-specific work plans. Approval of VCPRP property-specific work plans is dependent upon the document's overall compliance with VCPRP guidance documents, including appropriate property-specific quality assurance and health and safety plans.

Program staff independently collecting environmental samples follow the various internal SOPs.

4.5 Safety Considerations

All VCPRP project managers and environmental technicians shall have received OSHA 40 hour hazardous waste training and have had 8 hour OSHA refresher training in the past year before entering any property accepted into the VCPRP.

Properties approved for participation in the VCPRP will generally represent minimal risk to human health and the environment. Such properties will generally require a protection level no higher than “D” for entry. VCPRP field personnel should never enter any property where a level of protection higher than “D-level” is required without first obtaining permission from the unit chief. No such entry should be made by any staff not properly trained in the levels of protection required and without the appropriate equipment provided by the contractor or KDHE. VCPRP personnel should never attempt to directly sample unknown or hazardous substances.

Other routine hazards may exist at properties enrolled in the VCPRP. Each work plan submitted to the VCPRP will contain an appropriate property-specific Health and Safety Plan (HASP) to be followed by the contractor. When visiting the property in question, KDHE personnel should follow the contractors HASP or appropriate KDHE SOPs. In any case, personnel should be aware of dangers of operating or abandoned equipment, abandoned buildings, slippery surfaces, waste or trash piles or dumps, toxic or hazardous substances, infectious microorganisms, fire, electrical hazards, wild and domestic animals, poisonous plants, vicious dogs, belligerent persons, or other threatening situations. Injuries or illnesses resulting from such situations may lead to substantial human suffering and, from a QA/QC perspective, deprive environmental programs of the services of a valuable employee for an extended period of time.

Although it is not possible to predict every conceivable risk that may arise during the course of work, supervisors must ensure that those risks faced by staff on a recurring basis are addressed in the SOPs and are discussed during employee training. Field and laboratory staff are expected to abide by the safety protocols contained within both the KDHE and contractor QA management plans and health and safety plans, including SOPs, and to integrate safety considerations into all aspects of their work. BER routinely budgets for ongoing safety training expenses and annual medical physicals for field staff associated with monitoring and/or field inspections of properties contaminated with hazardous substances (refer to BER-017, Appendix Q).

Non-supervisory employees are expected to bring potentially unsafe practices or situations to the attention of their program manager. In turn, the program manager shall evaluate the practice or situation and either take the appropriate corrective action or, in complicated circumstances, seek the advice of the appropriate Section Chief or higher level supervisor. Major corrective actions (those warranting changes in an SOP) shall be implemented by staff only upon approval of the Section Chief and Bureau Director.

4.6 Requesting Analytical Services

VCPRP program staff may employ several approaches for the submission of environmental samples to a laboratory for analysis. Staff may submit environmental samples directly to the Kansas Health and Environmental Laboratory (KHEL) or to an approved commercial laboratory under contract to KDHE. The selected laboratory must have a QA/QC management plan which has been approved by KHEL. Although KHEL normally provides adequately for the program's analytical needs, the ability of project managers to contract with other laboratories provides additional analytical capacity and capability. These other laboratories may also be utilized for special QA/QC (e.g., inter-laboratory comparison) purposes.

4.7 Procedures for Assessing Data Precision, Accuracy, Representativeness, and Comparability

4.7.1 Ongoing Quality Assurance Review and Special Audits

All QA/QC aspects of the VCPRP are subject to ongoing review by the Unit Chief and Section Chief. Non-supervisory staff are expected to cooperate fully with administrative requests for information on data precision/accuracy, and overall QC performance. The Unit Chief is expected to track the QC performance of project managers, assist managers in identifying QC deficiencies within their assigned projects, and facilitate the initiation of necessary corrective actions (see Section 4.8). The Section Chief is expected to track the overall QA/QC performance of the program, assist the Unit Chief in identifying QC deficiencies, and facilitate the initiation of necessary corrective actions. The Section Chief also is responsible for summarizing the overall QA/QC performance of the program in annual reports required under Part I, Section 7, of the QMP.

To enhance the quality and credibility of the environmental data gathered by contractors and program staff, the VCPRP may, at the discretion of the Section Chief, Bureau Director, or Deputy Division Director, be required to participate in QA/QC audits performed by an independent party. Audit findings and corrective actions implemented in response to such findings are reported to the Bureau Director and the Deputy Division Director in the annual program QA/QC reports.

4.7.2 Equipment Calibration and Maintenance

All field equipment must be checked out by staff from BER's equipment and supply technician. The individual users of field equipment are responsible for the care of the equipment while in the field. Each user must ensure the equipment is checked for proper operation and calibration prior to leaving for the field. Malfunctions encountered while in the field must be recorded in the logbook associated with the equipment. Users must ensure the Unit Chief and/or the BER equipment and supply technician are notified of any malfunctions upon return from the field so that appropriate action can be initiated to repair or replace the item of equipment.

4.7.3 Quality Control Blanks and Spikes

Quality control procedures must be taken by field staff to ensure the integrity of samples collected by the VCPRP. Without checks on the sampling and analytical procedures, the potential exists for contradictory or incorrect results. Procedures describing quality control samples are defined in BER-012 (Appendix L) or are included in specific SOPs.

4.8 Corrective Action Procedures

In the context of quality assurance (QA), VCPRP corrective actions are procedures that may be implemented on environmental samples that do not meet predetermined QA specifications. Corrective action procedures are implemented in the event of a negative audit or any other situation in which the program is not being operated in a fashion consistent with the QA/QC goals and criteria stipulated in this management plan. Program staff, or the appropriate QA/QC program designee, review data validation reports, audit reports and nonconformance reports to identify significant or repetitious conditions adverse to quality, or deficiencies regarding the implementation or adherence to required QA/QC. If there are problems with the QA/QC process of voluntary parties or contractors, BER may refuse to accept data or reports submitted to the program. The voluntary party or their contractor will be informed what the QA/QC deficiency is and will be given the chance to correct the problem and submit data with acceptable QA/QC validation. In the case of samples taken by BER staff for the VCPRP, program staff, or the QA/QC designee will investigate the source of the problem and are responsible for defining and/or implementing the necessary actions to remedy the problems.

The quality characteristics of data generated by sampling, monitoring, or analyzing are defined in the following terms:

Accuracy: The degree of agreement of a measurement, or an average of measurements of the same thing, X , with an accepted reference or true value, T , usually expressed as the difference between the two values $X-T$, or the differences as a percentage of the reference or true value, $100(X-T/T)$, and sometimes expressed as a ratio, X/T . Accuracy is a measure of the bias inherent in the system.

Precision: A measure of mutual agreement among individual measurements of the same property, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision exist depending on the prescribed similar conditions.

Completeness: A measure of the amount of the valid data obtained from a measurement system, compared with the amount that was expected to be obtained under correct normal conditions, and that was needed to be obtained in meeting the project data quality objectives.

Representativeness: The degree to which data accurately and precisely represent a characteristic of population, the parameter variations at a sampling point, a process condition, or an environmental condition. It also includes how well the sampling point represents the actual parameter variations that are under study.

Comparability: The confidence with which one data set can be compared with another, a qualitative characteristic that must be assured in terms of sampling, analysis, reporting, etc.

The exact values of the quality characteristics will vary depending upon the analytical process and procedures employed. Property-specific work plans will detail the recommended field activities and analytical methodologies necessary to establish the appropriate data quality characteristics. Corrective actions may include resampling, reanalyzing samples, or auditing laboratory procedures.

4.9 Data Management

All work plans submitted in association with the VCPRP require a data management system including field logs, sample management and tracking procedures, and document control and inventory procedures for both laboratory data and field measurements to ensure that the data collected during the investigation are of adequate quality and quantity to support the findings of the investigation, risk assessment (if performed), and voluntary cleanup proposals and plans.

For each measurement, the data reduction scheme planned for collected data, including all equations used to calculate the concentration or value of the measured parameter shall be described. The principal criteria employed to validate the integrity of the data during collection and reporting should be referenced. All data collected should be validated at the appropriate field or laboratory quality control level to ascertain whether it is appropriate for its intended use. All task management and quality controls implemented shall be documented within the appropriate report appendix.

4.10 Quality Assurance/Control Reporting Procedures

All reports or deliverables submitted through the VCPRP require a QA/QC status summary of the project and any conditions adverse to data quality. The report should contain an assessment of measurement data accuracy, precision, and completeness, results of any performance audits, results of system audits, any reported non-conformance, and any quality assurance problems, together with recommended solutions or corrective actions.

In addition, end-of-year program QA evaluations are conducted by the Section Chief and the results submitted, in writing, to the Bureau Director and the Deputy Division Director by February 15 of the following year. The reports must indicate when, how, and by whom the evaluation was conducted, the specific aspects of the program subjected to review, a summary of important findings, and technical recommendations for necessary corrective actions. The Section Chief is expected to discuss the findings of these evaluations with the Unit Chiefs and all participating field, laboratory, and data management staff.